City of National City
Fire Department

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Cooking Oil Storage Tank Systems in Commercial Kitchens
NFPA 30
INFORMATION ONLY

Date: June 20, 2019

Project: Cooking Oil Above Ground Container

Reviews: R. Hernandez/Fire Marshal

CONTRACTOR SHALL MAKE CONTACT WITH THE BUILDING AND PLANNING DEPARTMENTS FOR PLAN SUBMITTAL. IT IS ALSO ADVISABLE TO MAKE CONTACT WITH THE LOCAL HEALTH DEPARTMENT FOR ADDITIONAL REQUIREMENTS

APPROVAL CONTINGENT UPON FINAL FIELD INSPECTION AND COMPLIANCE WITH ALL APPLICABLE CODES AND ORDINANCES

This section shall apply to storage tank systems for cooking oil located in commercial kitchens where tank capacities are **greater than 60 gal (227 L).**

This section shall apply to both fresh and waste cooking oil storage tank systems.

Where there are conflicts between the requirements of this section and requirements of other sections of this code, the requirements of this section shall take precedence.

Contractor shall also reference Chapter 6 of the California Fire Section (610)

Design and Construction of Cooking Oil Storage Tanks

Materials of Construction

Tanks shall be of metallic or nonmetallic construction**.** Tanks and their appurtenances shall be constructed of materials compatible with cooking oil. For tanks storing waste cooking oil, the tanks and their appurtenances shall be constructed of materials compatible with cooking oil at a minimum temperature of 140°F (60°C) continuous and 235°F (113°C) intermittent.

Design Standards

Metallic cooking oil storage tanks shall be listed in accordance with ANSI/UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids, or ANSI/UL 80, Standard for Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids. Nonmetallic cooking oil storage tanks shall be listed in accordance with UL 2152, Outline of Investigation for Special Purpose Nonmetallic Containers and Tanks for Specific Combustible or Noncombustible Liquids, and shall not exceed 200 gal (757 L) per tank.

Normal Venting

The normal vent(s) shall be located above the maximum normal liquid level. The normal vent shall be at least as large as the largest filling or withdrawal connection. Where used, normal vents, including vent piping, that are smaller than 1.25 in. (32 mm) nominal inside diameter shall be tested to verify that internal tank pressures will remain below a gauge pressure of 0.5 psi (3.5 kPa) under maximum expected flow rates for tank filling and withdrawal.

These tests shall be permitted to be conducted by a qualified outside agency or by the manufacturer, if certified by a qualified observer. Normal vents shall be permitted to discharge inside the building.

Emergency Venting

Cooking oil storage tanks shall be provided with emergency relief venting in accordance with Chapter 22.For nonmetallic cooking oil storage tanks, emergency relief venting by form of construction shall be permitted. This shall include the low melting point of the material of construction of the tank

For metallic cooking oil storage tanks, emergency relief venting by form of construction shall be prohibited. Emergency vents shall be permitted to discharge inside the building.

Prevention of Overfilling of Cooking Oil Storage Tanks

Every cooking oil storage tank shall be provided with means to prevent an accidental overfill. Such means shall be automatic and fail-safe in nature.

Tank Heating

Electrical equipment used for heating cooking oil shall be listed to ANSI/UL 499, *Standard for Electrical Heating Appliances*, and shall comply with *NFPA 70*. Electrical equipment used for heating cooking oil shall comply with *NFPA 70* and shall be equipped with automatic means to limit the temperature of the oil to less than 140°F (60°C). Use of electrical immersion heaters in nonmetallic tanks shall be prohibited.

Tank Installation and Testing

Location of Cooking Oil Storage Tanks.

Tanks shall be installed in locations appropriate for storage of foodstuffs or inventory and shall not be installed in areas designated as cooking areas. Tanks shall be spaced at least 3 ft. (0.9 m) away from any cooking appliance or any surface heated to a temperature above 140°F (60°C) continuous and at least 6 ft. (1.8 m) away from any open flame. Tanks shall not be installed under commercial kitchen ventilation hoods. Tanks shall not be required to be separated from one another.

Foundations for and Anchoring of Cooking Oil Storage Tanks

Tanks shall be secured to prevent the tank from tipping over. In areas subject to earthquakes, tank supports, the foundation, and anchoring shall meet the requirements of the applicable building code for the specific seismic zone. Engineering evaluation by a qualified, impartial outside agency shall be an acceptable method of meeting this requirement. Where a tank is located in areas subject to flooding, the method for anchoring the tank shall be capable of preventing the tank, either full or empty, from floating during a rise in water level up to the established maximum flood stage.

Engineering evaluation by a qualified, impartial outside agency shall be an acceptable method of meeting this requirement.

Tank Openings Other than Vents

Each connection to the tank below the normal liquid level through which liquid can normally flow shall be provided with an internal or external valve located as close as possible to the shell of the tank, in accordance with Chapter 22. Connections to the tank above the normal liquid level through which liquid can normally flow shall not be required to have a valve, provided there exists a liquid tight closure at the opposite end of the line. The liquid tight closure shall be in the form of a valve, a plug, or a coupling or fitting with positive shutoff.

Field Testing

As an alternate method to the testing requirements in Chapter 21, cooking oil storage tanks shall be tested for leaks at the time of installation by filling the tank with cooking oil to a liquid level above the highest tank seam or connection within the normal liquid level. Before the tank is placed in service, all leaks shall be corrected in an approved manner or the tank shall be replaced. An approved listing mark on a cooking oil storage tank shall be considered to be evidence of compliance with tank testing requirements.

Fire Protection for Cooking Oil Storage Tanks

Identification for Emergency Responders.

A sign or marking that meets the requirements of NFPA 704 or another approved system shall be applied to each cooking oil storage tank in accordance with Chapter 21. Additional signage shall be applied to each tank identifying the contents of the tank as cooking oil, either fresh or waste.

In areas where tanks are located, no additional ventilation shall be required beyond that necessary for comfort ventilation, provided that all cooking equipment is equipped with exhaust systems in accordance with NFPA 96. If ventilation is not provided as specified, then the tank shall be vented to another room inside the building that meets these requirements, or the tank shall be vented to the outside of the building.

Transfer Lines

Design and Construction of Fresh Cooking Oil Transfer Lines

Transfer lines for fresh cooking oil shall be permitted to be constructed of metallic or nonmetallic materials that are compatible with cooking oil and food products. Nonmetallic transfer lines shall also meet the following requirements:

1. (1) Transfer lines in pressure applications shall be rated for a working gauge pressure of 100 psi (689 kPa) at 70°F (21°C) or the maximum output pressure of the transfer pump, whichever is higher.

2. (2) Transfer lines in suction applications shall be rated for full vacuum at 70°F (21°C).

3. (3) Transfer lines shall be rated for temperatures up to 120°F (49°C) continuous.

4. (4) The maximum nominal inside diameter shall be no larger than 1.25 in. (32 mm)

5. (5) Leakage shall be controlled through the use of check valves or anti-siphon valves at points where the lines connect to the fresh oil tank.

Design and Construction of Waste Cooking Oil Transfer Lines

Waste cooking oil transfer lines shall be permitted to be constructed of metallic or nonmetallic materials that are compatible with cooking oil. Transfer lines shall be rated for use with cooking oil at elevated temperatures of 275°F (135°C) continuous and 350°F (177°C) intermittent. Nonmetallic transfer lines shall be rated for working pressures up to 250 psi (1724 kPa) at 275°F (135°C).

Flow Control

Cooking oil transfer lines shall be equipped with means to prevent unintended transfer or dispensing of cooking oil. These means shall be permitted to be in the form of momentary control switches, valves, check valves, anti-siphon valves, plugs, couplings, fittings, or any combination thereof that are fail-safe in nature.

Pressure Control

Pumping systems used to transfer cooking oil shall have means to prevent overpressurization of transfer lines. These means shall be in the form of relief valves, bypass valves, pressure sensor devices, or the pressure limitation of the pump itself.

Installation of Cooking Oil Transfer Lines in Plenum-Rated Spaces

Cooking oil transfer lines installed in plenum-rated spaces shall be enclosed in noncombustible raceways or enclosures, or shall be covered with a material listed and labeled for installation within a plenum.

Testing of Cooking Oil Transfer Lines

Cooking oil transfer lines shall be tested after installation and prior to use. Testing shall be with cooking oil at the normal operating pressures. Any leaks discovered in transfer lines as a result of testing shall be repaired or the transfer lines replaced prior to placing the transfer lines into service.

Bollard Protection

Installation of outdoor tank may require bollard protection if tank is subject to vehicle impact. Please consult with City Official for proper direction and requirements if required.

The information provide is meant as a general guideline and does not take the place of a thorough understanding and application of this code in its entirety